

Review of “Seamless seasonal to multi-annual predictions of temperature and standardized precipitation index by constraining transient climate model simulations”

I like the method presented here as producing (cheap, and therefore more flexible) forecasts that are complimentary to the traditional seasonal to decadal forecasts using an initialised climate model. I don't have many other comments and I think the initial reviewer comments have been well addressed by the authors.

Small typos:

L 37: “associated **with** phenomena”

L 64: “lack **of** a more”

L 65: Remove the full stop between “shocks” and “and”

L 298: “Africa **and** Australia”

L 417: as **a** representative model

L 431: seamless manner. Crucially” (add the missing full stop)

Main comments:

1. “A key strength of the analog-based method is its ability to leverage a large-sized ensemble at minimal computational cost as opposed to the significant cost it requires to generate such large ensembles with initialized prediction systems.” (L 169)

I mostly agree with this statement, however is there a slight nuance here? The method you use for analog selection is a simple ranking of the MAE, so as you increase the analog ensemble size, are you also degrading the ensemble selection by selecting ensemble members that are further away from the initial state? You demonstrate in the comments to the original reviewer that 149 members are generally more skilful than 25, but at some point, that will not be true.

2. The discussion about Figure 4 around line 240: Could a reference to the figure number be added in the text?
3. “This implies that a recalibration of the ensemble could render the analog-based forecasts 260 more valuable.” (L 259)

Could you add to this comment? I'm not sure how the recalibration could be done. Would the recalibration be done to the field before choosing the analogs? Could it be that the reduction in variability is due to the analog sampling. If many approximate matches are sampled and averaged, the size of the signal may be reduced?